

ABSTRACT

A high-voltage direct current cable insulation is made from a blend which includes an ethylene copolymer, such as ethylene-alpha olefin copolymer, with low crystallinity to reduce physical space charge trapping sites, a polar polymer modifier in an effective amount to enhance local conductivity to leak space charge quickly when
5 local stress is enhanced, and an ion scavenger to stabilize or neutralize the space charge to provide a composition which is an effective high- voltage DC cable insulation. A high-voltage direct current cable semiconductive shield is made from a blend that includes an ethylene copolymer, a carbon black having a low level of ionic species, a polar polymer modifier, and an ion scavenger.